

Retreat history of West Antarctic Ice Sheet after the last glacial maximum: A critical review

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In the community of Antarctic paleoceanography, it has been long believed that the melting of West Antarctic Ice Sheet (WAIS) started just after the last glacial maximum (LGM), and occurred mainly in the deglaciation period (19-10 kyr BP), a timing of melting of Northern Hemisphere ice sheets such as Laurentide Ice Sheet. In contrast, some geological/geochemical evidences especially from Antarctic Continent have suggested that the melting occurred mainly in the Holocene and even in the latest Holocene. These two contrasting views can be at least partly ascribed to the lack of robust tools for the reconstruction of the ice sheet melting in the sedimentary record. Particularly, chronological framework in the sediments has been a key issue. Our recent evidence with compound-specific radiocarbon dating of the marine sediments suggested that the ice shelf edge in the Ross Sea retreated as large as 400 km during the last 5000 years, confirming above view. In this presentation, I critically review this problem, the timing of melting of WAIS after the LGM. I stress that the importance of precise sediment chronologies for the Antarctic paleoceanography.